

Atty. Dkt. No. 594-25576-US

**IN THE DRAWINGS:**

The attached sheets of drawings include changes to Figures 5, 7 and 8. These sheets replace the original sheets. In each of Figures 5, 7 and 8, a PRIOR ART legend has been added.

Attachment:        Replacement Sheets  
                      Annotated Sheets Showing Changes

## REMARKS

This preliminary amendment is being filed with a Request for Continued Examination. Applicants submit that this preliminary amendment provides a full and complete response to the Final Office Action dated February 24, 2006, having a shortened statutory period for response set to expire on May 24, 2006. The drawings have been amended to add a PRIOR ART legend to Figures 5, 7 and 8. Applicants believe no new matter has been introduced by the amendments presented herein. The amendments have been made in a good faith effort to advance prosecution on the merits. Please reconsider the claims pending in the application for reasons discussed below.

Applicants appreciate the Examiner for withdrawing paragraph 112 rejections with respect to claim 15.

In the Final Office Action, the Examiner notes that an information disclosure statement has not been submitted in this application. Accordingly, an information disclosure statement is being submitted herewith. Applicants appreciate the Examiner for the reminder.

The Examiner objects to Figures 2-8 for lacking a PRIOR ART legend. In response, Figures 5, 7 and 8 have been amended to include a PRIOR ART legend. Applicants respectfully traverse this objection with respect to Figures 2-4 and 6. If the Examiner believes that those figures are prior art, Applicants respectfully request the Examiner to show the documents that illustrate such drawings in the prior art. Absent such a showing, Applicants respectfully request that the objection be withdrawn.

The Examiner takes the position that the 132 affidavit submitted with the response to the office action mailed August 10, 2005 is defective, since the inventive entity of the present application is not identical to the authorship of the publication mentioned in the 132 affidavit. Applicants respectfully traverse this rejection.

In the office action mailed August 10, 2005, claims 1-27 were rejected under 35 USC 102(a) as being anticipated by PRESTACK WAVEFORM INVERSION USING A GENETIC ALGORITHM – THE PRESENT AND THE FUTURE by S. Mallick, CSEG

Recorder (June 2001) ("Mallick 2001"). In response to this rejection, Applicants submitted an affidavit under Rule 132 to overcome the rejection.

MPEP 706.02(a) requires that in order for 35 U.S.C. 102(a) to apply, the reference must have a publication date earlier in time than the effective filing date of the application and must not be applicant's own work. In this instance, the publication date of Mallick 2001 is earlier than the effective filing date of the present application. However, Mallick 2001 is one of applicants' own work. Accordingly, Mallick 2001 is not a proper reference under 35 U.S.C. 102(a). Withdrawal of the rejection is respectfully requested.

Further, a rejection under 35 U.S.C. 102(a) may be overcome by filing an affidavit under Rule 132 to show that the reference invention is not by "another". MPEP 706.02(b). Unless it is a statutory bar, a rejection based on a publication may be overcome by a showing that it was published either by applicant himself or on his behalf. MPEP 715.01(c). Where the applicant is one of the co-authors of a publication cited against his application, he may overcome the rejection by filing an affidavit or declaration under 37 CFR 1.132 establishing that the publication is describing applicant's own work. MPEP 715.01(c).

In this instance, S. Mallick is the author of Mallick 2001 and is also an inventor of the present application along with N. Dutta. In response to the 35 U.S.C. 102(a) rejection, Applicants submitted an affidavit under Rule 132 to overcome the rejection, pursuant to MPEP 706.02(b) and MPEP 715.01(c). In the 132 affidavit, S. Mallick states that he is the author of Mallick 2001, that he is an inventor of the present application and that Mallick 2001 describes the subject matter recited in claims 1-27 of the present application. Since Mallick 2001 merely describes one of Applicants' own work, Mallick 2001 is therefore not a reference invention by "another".

Where there is a published article identifying the authorship that discloses subject matter being claimed in an application undergoing examination, the designation of authorship does not raise a presumption of inventorship with respect to the subject matter disclosed in the article so as to justify a rejection under 35 U.S.C. 102(f). MPEP 716.10. It is clear from MPEP 715.01(c) and MPEP 716.10 that authorship and inventorship do not involve the same concept. In this instance, the originally filed

declaration states that the proper inventors of the present application are both S. Mallick and N. Dutta. A publication by one of the inventors, i.e., S. Mallick, describing the subject matter of the present application less than one year of the effective filing date of the present application cannot be a reference to the present application. Accordingly, withdrawal of the rejection with respect to the 132 affidavit is respectfully requested.

Claims 1-27 stand rejected under 35 USC 102(f). The Examiner takes the position that Applicants did not invent the claimed subject matter. Applicants respectfully traverse this rejection. As mentioned above, where there is a published article identifying the authorship that discloses subject matter being claimed in an application undergoing examination, the designation of authorship does not raise a presumption of inventorship with respect to the subject matter disclosed in the article so as to justify a rejection under 35 U.S.C. 102(f). MPEP 716.10. In this instance, the claimed subject matter is invented by both S. Mallick and N. Dutta. S. Mallick's publication of Mallick 2001 less than a year of the effective filing date of the present application is merely a description of Applicants' own work and is therefore not a proper reference to Applicants' invention. The Examiner's reliance on the fact that the authorship of Mallick 2001 must be identical to the inventorship of the present application is in error and in contradiction with MPEP 706.02(b), MPEP 715.01(c) and MPEP 716.10. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1-27 stand rejected under 35 USC 102(a) as being anticipated by Mallick 2001. Applicants respectfully traverse this rejection. As mentioned above, Mallick 2001 is not a proper reference under 35 USC 102(a) since it is merely a description of one of Applicants' own work published less than one year from the effective filing date of the present application. Withdrawal of the rejection is therefore respectfully requested.

Claims 1-5 and 7-27 stand rejected under 35 USC 103(a) as being unpatentable over SOME PRACTICAL ASPECTS OF PRESTACK WAVEFORM INVERSION USING A GENETIC ALGORITHM: AN EXAMPLE FROM THE EAST TEXAS WOODBINE GAS SAND by S. Mallick, Geophysics, Vol. 64, No. 2, pages 326-336 (March-April 1999) ("Mallick 1999") in view of US Patent No. 6,694,261 ("Huffman"). Applicants respectfully traverse this rejection.

The Examiner takes the position that the Poisson's ratio between pressure and shear waves is well known. The Examiner states that the ratio is disclosed on the top portion of page 329 of Mallick 1999 and on column 6, lines 6-20 of Huffman. However, the top portion of page 329 of Mallick 1999 merely states that "PPD functions for density and Poisson's ratio, in conjunction with the PPD functions of P-wave traveltime and P-wave velocity, give the density and Poisson's ratio models. A complete elastic earth model can therefore be obtained from these PPD plots." Nothing in Mallick 1999 mentions about determining shallow water flow risk using the elastic model by comparing the pressure-wave velocity to the shear-wave velocity, as recited in claim 1; or determining the shallow water flow risk using the post-stack inverted elastic model to compare the pressure-wave velocity to the shear-wave velocity, as recited in claim 26.

Column 6, lines 6-20 of Huffman states:

However, the predicted  $V_p/V_s$  relationship is consistent with values obtained by others for unconsolidated sand-packs. FIG. 3d, after Hamilton (1976), shows a plot of compressional and shear velocities of water saturated sands at relatively low effective stress. The abscissa 190 is the effective stress in pounds per square inch (psi) while the ordinate 192 is the velocity in meters per second (m/s). Plotted are laboratory measurements of compressional 194 and shear 196 velocities for a fine sand (grain size 0.125 to 0.149 mm.) and curves 198 and 200 for the compressional and shear velocities for a coarse sand (0.59 to 0.84 mm). The scales on both the abscissa and the ordinate are logarithmic so that at 20 psi, the  $V_p/V_s$  ratio is approximately 6.0.

Like Mallick 1999, nothing in Huffman discloses or teaches determining the shallow water flow risk using the elastic model by comparing the pressure-wave velocity to the shear-wave velocity, as recited in claim 1; or determining the shallow water flow risk using the post-stack inverted elastic model to compare the pressure-wave velocity to the shear-wave velocity, as recited in claim 26.

Neither Mallick 1999 nor Huffman, alone or in combination, teaches or discloses determining the shallow water flow risk using the elastic model by comparing the pressure-wave velocity to the shear-wave velocity, as recited in claim 1; and determining the shallow water flow risk using the post-stack inverted elastic model to compare the pressure-wave velocity to the shear-wave velocity, as recited in claim 26. Furthermore, there is no suggestion discerned in Mallick 1999 or Huffman of modifying

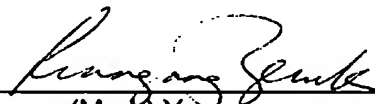
the devices or methods disclosed therein in the direction of claims 1 or 26, nor is there any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Therefore, claims 1 and 26 are patentable over Mallick 1999 in view of Huffman. Claims 2-5, 7-25 and 27 are also patentable over Mallick 1999 in view of Huffman since they depend from claims 1 and 26, respectively.

Claim 6 stands rejected under 35 USC 103(a) as being unpatentable over Mallick 1999 in view of Huffman and KIRCHHOFF IMAGING AS A TOOL FOR AVO/AVA ANALYSIS by Tygel et al., The Leading Edge (August 1999) ("Tygel"). Applicants respectfully traverse this rejection.

Neither Mallick 1999 nor Huffman nor Tygel, alone or in combination, teaches or discloses determining the shallow water flow risk using the elastic model by comparing the pressure-wave velocity to the shear-wave velocity, as recited in claim 1. Furthermore, there is no suggestion discerned in Mallick 1999, Huffman or Tygel of modifying the devices or methods disclosed therein in the direction of claim 1, nor is there any suggestion of the desirability of such modifications. Since claim 6 depends from claim 1 and since neither Mallick 1999 nor Huffman nor Tygel, alone or in combination, teaches, discloses or suggests all the limitations of claim 1, claim 6 is therefore also patentable over Mallick 1999, Huffman and Tygel. Accordingly, withdrawal of the rejection is respectfully requested.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the claimed invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

  
\_\_\_\_\_  
Liangang (Mark) Ye  
Registration No. 48,276

Atty. Dkt. No. 594-25576-US

Attorney at Law  
P.O. Box 2469  
Houston, Texas 77252-2469  
Telephone: (713) 689-5799  
Facsimile: (713) 689-1977